CLAIMS

What is claimed is:

1. A paper transport apparatus comprising:

one or more image carriers carrying toner;

one or more transfer means, rotating and coming in contact with at least one of the image carrier or carriers, for causing one or more toner images formed on at least one of the image carrier or carriers to be electrostatically relocated onto one or more sheets of paper; and

one or more paper transport means disposed upstream in one or more transport directions from at least one of the transfer means and comprising one or more pairs of pressure rollers holding one or more lead edge portion or portions of at least one of the sheet or sheets of paper in one or more nips formed therebetween and rotating so as to cause transport of same;

at least one of the paper transport means being disposed to the side, on which at least one of the image carrier or carriers is present, of a plane more or less tangent to at least one nip formed between at least one of the image carrier or carriers and at least one of the transfer means; and

at least one of the sheet or sheets of paper being transported from at least one of the paper transport means toward at least one of the transfer means.

2. A paper transport apparatus according to claim 1 wherein:

at least one of the pressure roller pair or pairs comprises one or more drive rollers and one or more idler rollers;

at least one of the drive roller or rollers comprises at least one metal roller; and

at least one of the idler roller or rollers comprises at least one electrically conductive elastic roller.

3. A paper transport apparatus according to claim 2 wherein:

at least one of the idler roller or rollers of at least one of the pressure roller pair or pairs is driven by at least one of the drive roller or rollers.

4. A paper transport apparatus according to claim 2 wherein:

one or more voltages opposite in polarity to at least one electrostatic potential of at

least one of the image carrier or carriers is or are applied to at least one of the idler roller or rollers of at least one of the pressure roller pair or pairs.

5. A paper transport apparatus according to any of claims 2 through 4 wherein:

application of voltage to at least one of the idler roller or rollers is timed relative to holding of at least one of the lead edge portion or portions of at least one of the transported sheet or sheets of paper by at least one nip formed by at least one of the pressure roller pair or pairs.

6. A paper transport apparatus according to claim 5 wherein:

at least one length of at least one of the paper lead edge portion or portions at which voltage is applied is not so long as to substantially affect information contained in at least one image formed on at least one of the image carrier or carriers.

7. A paper transport apparatus according to claim 4 wherein:

at least one of the applied voltage or voltages is varied in accordance with difference in thickness attributable to type of transported paper.

8. A paper transport apparatus according to claim 5 wherein:

at least one of the applied voltage or voltages is varied in accordance with difference in thickness attributable to type of transported paper.

9. A paper transport apparatus according to claim 6 wherein:

at least one of the applied voltage or voltages is varied in accordance with difference in thickness attributable to type of transported paper.

10. A paper transport apparatus according to claim 7 wherein:

at least one of the applied voltage or voltages increases with increasing paper thickness.

11. A paper transport apparatus according to claim 8 or 9 wherein:

at least one of the applied voltage or voltages increases with increasing paper thickness.

12. A paper transport apparatus according to claim 2 wherein:

at least one absolute value of at least one maximum applied voltage is less than at least one absolute value of at least one surface potential to which at least one of the image carrier or carriers is charged.

13. A paper transport apparatus according to claim 7 wherein:

at least one absolute value of at least one maximum applied voltage is less than at least one absolute value of at least one surface potential to which at least one of the image carrier or carriers is charged.

14. A paper transport apparatus according to claim 8 or 9 wherein:

at least one absolute value of at least one maximum applied voltage is less than at least one absolute value of at least one surface potential to which at least one of the image carrier or carriers is charged.

15. A paper transport apparatus according to claim 10 wherein:

at least one absolute value of at least one maximum applied voltage is less than at least one absolute value of at least one surface potential to which at least one of the image carrier or carriers is charged.

16. A paper transport apparatus according to claim 11 wherein:

at least one absolute value of at least one maximum applied voltage is less than at least one absolute value of at least one surface potential to which at least one of the image carrier or carriers is charged.

17. A paper transport apparatus according to claim 16 wherein:

at least one absolute value of at least one maximum applied voltage is approximately equal to at least one absolute value of at least one development bias voltage which when applied to at least one of the transfer means would cause at least one latent electrostatic image on at least one of the image carrier or carriers to become manifest.

18. A paper transport method for transporting one or more sheets of paper relative to one or more image forming means comprising one or more image carriers carrying toner and one or more transfer rollers, rotating and coming in contact with at least one of the image carrier or carriers, for causing one or more toner images formed on at least one of the image carrier or carriers to be electrostatically relocated onto one or more sheets of paper;

the paper transport method being such that, upstream in one or more transport directions from at least one of the image forming means, at least one of the sheet or sheets of paper is transported toward at least one of the transfer roller or rollers from a direction to the side, on which at least one of the image carrier or carriers is present, of a

plane more or less tangent to at least one nip formed between at least one of the image carrier or carriers and at least one of the transfer means.

19. A paper transport method according to claim 18 wherein:

as a result of application of one or more voltages, timed in prescribed fashion and opposite in polarity to at least one electrostatic potential of at least one of the image carrier or carriers, to one or more pressure rollers of one or more paper transport means disposed upstream in one or more transport directions from at least one of the image forming means, one or more voltages is or are applied to only lead edge portion or portions of at least one of the transported sheet or sheets of paper in transporting same to at least one of the image forming means.

20. A paper transport method according to claim 19 wherein:

at least one length of at least one of the paper lead edge portion or portions at which voltage is applied is not so long as to substantially affect information contained in at least one image formed on at least one of the image carrier or carriers.

21. A paper transport method according to claim 20 wherein:

at least one of the applied voltage or voltages is varied in accordance with difference in thickness attributable to type of transported paper, being increased with increasing thickness of the paper.

22. A paper transport method according to any of claims 19 through 21 wherein:

at least one absolute value of at least one maximum applied voltage is less than at least one absolute value of at least one surface potential to which at least one of the image carrier or carriers is charged.

23. A paper transport method according to claim 22 wherein:

at least one absolute value of at least one maximum applied voltage is approximately equal to at least one absolute value of at least one development bias voltage which when applied to at least one of the transfer means would cause at least one latent electrostatic image on at least one of the image carrier or carriers to become manifest.